Abstract of Poster Presentation

WAKomics: Large-scale functional analysis of the WAK genes involved in the rice/*Magnaporthe grisea*/ interaction

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Wall-associated protein kinases (WAKs) are a new group of receptor-like kinases (RLKs) recently identified in *Arabidopsis* and in rice. A gene responsible for the quantitative resistance to *Fusarium oxysporum* in *Arabidopsis*, RFO1, encodes a WAK-like protein (WAKL22). This finding suggests an important role for some WAKs in disease resistance. The first WAK in rice was recently identified as OsWAK1. The induction and overexpression of this gene in rice led to enhanced resistance to rice blast. Furthermore, WAKs also seem to interact with a wide range of proteins involved in cell-wall composition, phosphorylation or transcription processes. This is functional evidence that WAKs are novel RLKs playing an important role in plant disease resistance. Microarray data reveal differential expression of some WAKs in rice leaves infected with *Magnaporthe grisea*. This set of WAKs was analysed by real time PCR in a time course experiment and confirmed the microarray results. This analysis also revealed differential expression for some WAKs very early after infection (4, 6 or 8 hours post inoculation), suggesting an early role in pathogen recognition. To confirm a role of these WAKs in rice blast resistance, Knock-Out and transgenic rice lines with constitutive expression of a subset of WAKs were produced. Kinase assays, localisation and molecular interactions using a reporter system are also planned. Preliminary data supporting the role of this gene family in disease resistance in rice will be presented.